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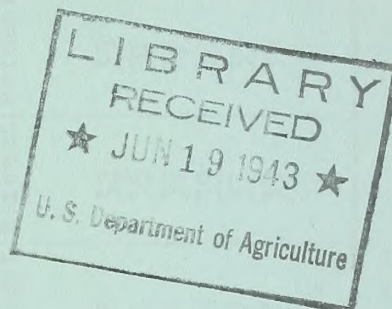
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May 1942
Reserve

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the

COLORADO RIVER DRAINAGE BASIN

May 1, 1942



Issued by the
United States Department of Agriculture
Soil Conservation Service
Division of Irrigation
In Cooperation with
The Colorado Agricultural Experiment Station
Colorado State College
Fort Collins, Colorado

May 10, 1942

SNOW SURVEYS AND IRRIGATION WATER FORECASTS
for
COLORADO RIVER BASIN
May 1, 1942

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service, U. S. Department of Agriculture, in cooperation with State departments, other federal bureaus and local organizations. The snow measurements are made principally by field personnel of the following Federal Government organizations: Forest Service, National Park Service, Geological Survey, Bureau of Reclamation, Indian Service; and the Utah Agricultural Experiment Station. This work is otherwise conducted cooperatively with the State Engineers of Utah, Colorado, and Wyoming, U. S. Geological Survey, Utah and Colorado Agricultural Experiment Stations, and various municipalities, irrigation associations, power companies, and others. Precipitation records are supplied by the U. S. Weather Bureau.

SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth		Water Content		Number Courses in Average	Snow Density			1942 Water Content in percent of	
	Seven Year Avg.*	1941	1942	Seven Year Avg.*		Seven Year Avg.*	1941	1942	Seven Year Avg.*	1941
	In.	In.	In.	In.		Percent	Percent	Percent		
COLORADO RIVER										
Green River	16.4	25.4	7.6	6.3	6	38	32	39	48	38
Colorado River**	33.0	38.0	43.6	11.6	19	35	36	30	111	94
Yampa River	36.8	41.5	37.8	16.2	5	44	39	39	91	91
White River	31.2	48.3	45.6	12.6	2	40	39	35	127	86
Gunnison River	37.8	50.6	50.8	13.9	11	37	37	35	127	93
Dolores River	15.8	33.5	19.9	5.9	3	37	39	36	120	54
San Juan River	29.9	61.8	36.9	13.2	5	44	42	40	111	57

*Some for shorter periods
**Above Grand Junction, Colorado.

PRECIPITATION DATA

(Based on incomplete returns)

WATERSHED	STATE	Precipitation October 1 to April 30	Departure from Normal	Precipitation	Departure from Normal
		Inches	Inches	April Inches	Inches
Colorado	Colorado	14.97	+4.65	3.45	+1.84
Green	Wyoming	7.04	+1.84	1.27	+0.27
San Juan	New Mexico	7.21	+1.25	1.14	+0.32
Gila	Arizona	8.94	+0.16	1.28	+0.39
Gila	New Mexico	5.28	-0.50	0.65	+0.13

Precipitation on the watershed of the Colorado River and its tributaries in Colorado, Wyoming, New Mexico and Arizona was above normal during April. The greatest excess for the month occurred on the watershed of the Colorado in Colorado. The accumulated precipitation since October 1 is now above normal over all parts of the watershed except the Gila in New Mexico.

WATER SUPPLY OUTLOOK

COLORADO RIVER AND TRIBUTARIES IN COLORADO. Snow cover on the headwaters of the Colorado and tributaries, above Grand Junction, was found to be about 10 per cent better than the past seven-year average for May first and only slightly less than a year ago. During April the accumulation of snow over this entire drainage was normal, the greatest being on the west side of Loveland Pass, where the water content of the snow increased 7.6 inches during the month. The runoff will be normal this season, with all tributaries at high stage early in June. Above normal flow is to be expected in the Blue River. The soil moisture in both the mountains and valley areas is good. Adverse weather conditions during April delayed farming operations necessitating late planting of crops. Because of the prime soil moisture, the late seeding should not materially reduce the crop yield. Ample water will be available for all reservoir fillings.

GUNNISON RIVER AND TRIBUTARIES. The outlook for this drainage is especially good and, because of the present amount of water held in snow storage, about one quarter more than the past seven-year average, streams will flow at high stage during late May and early June. During April substantial gains in the water content of the snow were found for the higher elevations. At Trickle Divide and also on the west side of Monarch Pass, the accumulation was nearly 8 inches of water, making a total of nearly 3 feet. At lower elevations the May 1 water content of the snow in some places was less than it was a month ago. The seasonal runoff will be normal, with ample water for irriga-

tion needs. Taylor Park Reservoir now holds more than 30 percent of capacity and is expected to fill before demand is made for supplemental storage supplies. Because of the good to excellent soil moisture throughout this drainage area, heavy drafts on irrigation supplies will not be immediate. April storms and wet fields retarded farm operations in the agricultural areas. There will be a heavy surplus of water during the early part of the irrigation season and all reservoirs should fill to capacity.

YAMPA AND WHITE RIVERS. For the Yampa River drainage, the water content of the high snow is the same as last year and normal seasonal runoff is to be expected. For the White River, the snow holds about one-eighth less water than a year ago. For both these watersheds, the water content of the snow dropped nearly three inches during April. Reasonably high water may be expected in this stream and tributaries and normal flow in mid-summer. Soil moisture throughout the farming areas of these valleys is now favorable.

DOLORES RIVER. On the Dolores River drainage, the May 1 snow surveys indicate but one-half the water content of a year ago, and the runoff this season will be correspondingly less than last year. Since the snow pack is one-fifth more than the past seven-year average, this stream and its tributaries will be at high stage in late May but are expected to recede to normal flow by July 1. No shortage of irrigation water will occur in the agricultural areas served by the Dolores. Soil moisture is generally good in both mountain and valley districts. Reservoir storage is normal.

SAN JUAN RIVER. All areas in the southwest portion of Colorado have less snow cover May 1 than at this time last year. Over the San Juan drainage the water content of the snow is now but slightly more than one-half the amount a year ago but one-tenth more than the past seven-year average. The runoff will be less than last season, with moderately high water in early June. The mountain soil was well saturated last fall, which is indicative of sustained runoff well into the summer. The irrigation supply will be normal this coming season. Reservoir storage in this drainage is well advanced and full capacity will be realized during the period of high water late this month.

GREEN RIVER AND TRIBUTARIES. The outlook for the Green River is less promising. The May 1 snow surveys show the water content to be about 40 percent of the amount last year at this time and less than one-half of the past seven-year average. Because of deficient April storms the water content on all snow courses was reduced by more than one-half. The runoff is not expected to exceed 75 percent of the normal flow this season.

GILA AND SALT RIVERS. Because of the exceptional rainfall last year, the ground water level has been raised materially. In the Gila Valley the general average rise is about $4\frac{1}{2}$ feet, and in the Salt River Valley this average approximates about $6\frac{1}{2}$ feet. Reservoir storage in Arizona is ample for the coming irrigation season. In San Carlos Reservoir there is now in storage 781,500 acre-feet of water, which is about 15 percent more than it was a year ago. For the Salt River drainage, the soil moisture is generally satisfactory; range conditions are slightly below normal. There is no snow except at high elevations.

COLORADO RIVER WATERSHED
Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1942, at Fort Collins, Colorado

Main Drainage and Snow Course		Local Drainage	State	Location		Elev.	National Forest	May 1 Snow Cover Measurements			
No.	Snow Course			Locality	Description			Av. Snow Depth	Av. Water Content	1941	1942
COLORADO RIVER (Above Grand Junction)											
7	Park View*	Willow Cr.	Colo.	7mi. SE. Rand	24-5N-78W	9200	Routt	In.	In.	In.	
12	Phantom Valley	Colorado R.	"	11mi. N. Grand L.	7-5N-75W	9300	Ry. Mtn. N.P.	21.4	27.7	32.2	
16	Berthoud Pass	Fraser R.	"	4mi. S. West Port.	35-2S-75W	9700	Arapaho	16.3	27.7	1.6	
19	Tennessee Pass*	Eagle River	"	Tennessee Pass	21-8S-80W	10200	Cochetopa	43.7	50.1	59.0	
33	Ind. Pass Tunnel	Lincoln Gulch	"	W. Port. Tunnel	30-11S-82W	10200	Holy Cross	16.4	27.4	22.2	
34	N. Lost Trail Cr.	Crystal R.	"	3mi. E. Marble	20-11S-87W	9200	"	40.7	47.2	50.1	
37	M. Fork Camp Cr.	Williams Fk.	"	13mi. N. Dillon	16-3S-77W	9000	Arapaho	26.3	29.7	46.5	
44	Fiddler Gulch	Eagle River	"	2mi. E. Mitchell	1-8S-80W	11000	Holy Cross	14.1	20.5	27.8	
45	Nast	Frying Pan R.	"	23mi. SE. Basalt	1-9S-83W	8700	"	42.7	47.6	59.3	
54	Maroon Lake	Maroon Creek	"	8mi. SW. Aspen	7-11S-85W	9300	"	4.5	3.1	13.1	
56	Mesa Lakes	Mesa Creek	"	15mi. E. Palisade	35-11S-96W	10000	Grand Mesa	---	23.8	---	
59	Lulu	Inlu Creek	"	14mi. N. Grand L.	25-6N-76W	10200	Ry. Mtn. N.P.	48.2	71.6	75.0	
62	Willow Creek P.	Willow Cr.	"	Willow Cr. Pass	1-4N-78W	9500	Arapaho	58.9	47.4	60.8	
64	N. Inlet Grand L.	N. Inlet Cr.	"	4mi. NE. Grand L.	26-4N-75W	9000	Ry. Mtn. N.P.	38.3	41.6	42.0	
65	Lake Irene	Beaver Creek	"	1mi. SW. Milner P.	8-5N-75W	10600	"	25.5	26.7	27.8	
66	Thunderbolt Peak	Buchanan Cr.	"	5mi. E. Monarch L.	22-2N-74W	9500	Arapaho	67.9	67.4	74.8	
69	Arrow	S. Ranch Cr.	"	Arrow	34-1S-75W	9900	"	41.2	43.3	52.3	
70	Lapland	St. Louis Cr.	"	7mi. SW. Fraser	16-2S-76W	9300	"	26.9	29.8	45.0	
79	Fremont Pass #2	Blue River	"	Fremont Pass	2-8S-79W	11400	"	21.5	31.2	33.2	
91	Lynx Pass No. 2	Rock Cr.	"	7mi. NE. Toponas	27-2N-83W	9100	Routt	49.9	52.8	63.4	
96	Shrine Pass	Blue River	"	Shrine Pass	15-6S-79W	10500	Arapaho	23.4	28.9	27.6	
97	Grizzly Peak	"	"	1mi. W. Loveland P.	2-5S-76W	11250	"	---	---	56.0	
Average for Drainage						33.0	38.0	43.6	11.7	13.7	
YAMPA RIVER											
6	Dry Lake	Soda Creek	Colo.	4mi. NE. Steam. Spgs	26-7N-84W	8200	Routt	34.0	36.7	31.6	
8	Columbine Lodge*	Harrison Cr.	"	Rbt. Ears Pass	21-5N-82W	9300	"	45.3	48.1	49.5	
9	Elk River	Independence Cr.	"	Columbine	6-10N-85W	8700	"	31.6	34.0	32.6	
91	Lynx Pass No. 2*	Morrison Cr.	"	7mi. NE. Toponas	27-2N-83W	9100	"	23.4	28.9	27.6	
10	Rambler R.S.	Little Snake R.	Wyo.	13mi. SW. Encampmt	25-14N-86W	8600	Medicine Bow	50.1	60.0	47.6	
Average for Drainage						36.8	41.5	37.8	16.2	16.2	
WHITE RIVER											
35	Burro Mountain	N. Elk Creek	Colo.	8mi. S. Buford	15-2S-91W	9000	White River	39.4	58.8	60.0	
36	Rio Blanco	White River	"	4mi. NW. Trappers L	28-1N-88W	8500	"	22.9	37.8	31.2	
Average for period of record.						31.2	48.3	45.6	12.6	18.6	

*On adjacent drainage. @ Average for period of record.

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COLORADO RIVER WATERSHED

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Issued May 10, 1942, at Fort Collins, Colo.

No.	Main Drainage and Snow Course	Local Drainage	Location		Elev.	National Forest	May 1 Snow Cover Measurements						
			State	Locality			Description	Av. Snow Depth		Av. Water Content			
								In.	In.	1941	1942	Av. @	In.
GUNNISON RIVER													In.
18	Crested Butte	Slate River	Colo.	3mi. N. Crested B.	22-13S-86W	9000	Gunnison	12.1	23.3	15.9	4.7	9.7	5.6
42	Marshall Creek	Marshall Cr.	"	Marshall Pass	24-48N-6E	10800	Cochetopa	30.3	54.4	45.4	10.6	17.8	13.5
43	Poncha Creek*	"	"	"	19-48N-7E	10500	"	23.8	52.8	40.5	8.4	18.6	12.9
46	Park Cone	Taylor River	"	Taylor Park Res.	19-14S-82W	9700	Gunnison	12.1	25.5	19.2	3.9	5.7	6.7
53	Alexander Lake	Kiser Creek	"	10mi. N. Cedaredge	2-12S-95W	10000	Grand Mesa	66.4	88.9	81.4	25.9	33.7	31.5
55	Snowshoe Mesa	Snowshoe Cr.	"	16mi. NE. Paonia	14-13S-89W	7500	Gunnison	0.0	0.0	0.0	0.0	0.0	0.0
58	Ironton Park	Red Mtn. Cr.	"	5mi. S. Ouray	29-43N-7W	9800	Uncompahgre	24.7	39.4	50.8	9.6	16.7	18.2
85	Trickle Divide	Surface Cr.	"	13mi. N. Cedaredge	23-11S-94W	10000	Grand Mesa	87.4	90.4	108.0	32.0	34.9	37.6
87	Park Reservoir	"	"	11 mi. "	34-11S-94W	9500	"	75.8	81.7	87.4	29.2	33.4	32.9
89	Porphyry Creek	Porphyry Cr.	"	Monarch Pass	19-49N-6E	10800	Cochetopa	58.8	61.4	76.0	20.1	24.1	23.8
94	Sunshine Mt. No. 2	Henson Cr.	"	10mi. W. Lake City	35-44N-6W	10200	Gunnison	24.9	39.0	34.5	9.0	13.0	11.1
Average for Drainage								37.8	50.6	50.8	13.9	18.9	17.6
DOLORES RIVER													
23	Rico	Dolores R.	Colo.	2mi. S. Rico	11-38N-11W	8700	Montezuma	2.6	18.5	0.0	1.0	7.2	0.0
24	Telluride	San Miguel R.	"	Telluride	6-42N-8W	8600	"	2.3	12.1	4.0	0.7	4.5	0.2
25	Lizard Head	Dolores R.	"	10mi. N. Rico	24-41N-10W	10300	"	42.4	70.0	55.8	16.0	27.8	21.0
90	Lone Cone	Ground Hog Cr.	"	16mi. N. W. Rico	23-41N-13W	8900	"	--	--	19.9	--	--	6.8
Average for Drainage								15.8	33.5	19.9	5.9	13.2	7.1
SAN JUAN RIVER													
26	Wolf Creek Pass*	Wolf Creek	Colo.	Wolf Creek Pass	4-37N-2E	10000	Rio Grande	61.2	108.2	77.4	27.4	45.2	32.9
29	Upper San Juan	"	"	4mi. W. Wolf Cr. P.	10-37N-1E	10000	San Juan	71.6	130.5	93.5	31.3	54.3	37.5
30	Silverton Sub. S.	Animas R.	"	2mi. NE. Silverton	10-41N-7W	9400	"	3.5	13.2	6.0	1.4	6.1	1.0
31	Cascade	Cascade Cr.	"	5mi. N. Electra L.	12-39N-9W	8850	"	7.6	45.3	7.7	2.9	18.4	2.1
93	Granite Peaks	Los Pinos R.	"	11mi. NE. Columbus	24-37N-6W	7950	"	5.8	11.7	0.0	3.0	6.1	0.0
18	Chamita*	Navajo R.	N. Mex.	6mi. NW. Chama	36.9N-106.7W	8500	Off Forest	--	31.3	--	--	13.0	--
Average for Drainage								29.9	61.8	36.9	13.2	26.0	14.7

*On adjacent drainage.

© Average for period of record.

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			Locality	Descrip- tion			Av. Snow Depth	Av. Water Content	1941	1942
							In.	In.	In.	In.
GREEN RIVER										
23	Dutch Joe Cr.	Wyo.	12mi. N. Elkhorn	33-31N-104W	8700	Wyoming	8.8	25.0	1.8	3.0
24	Mulligan Park	"	Fremont Lake	17-35N-108W	8900	"	15.4	23.9	11.7	5.4
25	Kendall R.S.	"	27mi. NW. Pinedale	23-38N-110W	7900	"	9.2	19.4	2.9	3.9
26	Loomis Park	"	25mi. NW. "	14-37N-111W	8500	"	22.9	17.6	12.8	9.1
27	Snyder Basin R.S.	"	22mi. W. Big Piney	15-29N-114W	8040	"	13.6	28.1	0	5.2
28	Piney-LaBarge	"	24mi. W. Big Piney	19-29N-114W	8820	"	28.6	38.4	16.7	11.0
					Average for Drainage		16.4	25.4	7.6	6.3
							0.6	7.4	4.0	1.4
							5.3	4.0	5.3	0
							8.5	11.7	6.6	3.0

@Average for period of record.

RESERVOIR STORAGE

Reservoir Storage in Thousands of Acre-Feet, Colorado and Arizona, as of May 1 for the years 1933 to 1942, inclusive. (Based on data from the Bureau of Reclamation, Salt River Water Users' Association and other agencies.) A = Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling forecast for 1942.

Reservoir	Capacity Ac-Ft.	1933	1934	1935	1936	1937	1938	1939	1940	1941	10-yr.	
		Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Ac-Ft.	Avg. ft.	C
Colorado	106.2	--	--	--	--	--	32.8	78.0	45.0	32.7	83.2	%
Taylor Park	126.3	--	--	--	--	--	--	--	--	1.9	44.1	100
Vallecito											23.0	75
Arizona												
Roosevelt	1420.0	826.9	244.1	503.1	507.6	978.0	437.4	94.1	11.1	1398.4	636.7	215
Horse Mesa	245.1	19.1	188.0	219.2	237.8	240.3	236.2	213.5	68.4	239.6	188.7	119
Mormon Flat	58.0	47.7	40.3	51.3	40.4	33.3	47.2	42.2	50.8	57.2	45.7	102
Stewart Mt.	70.0	58.6	49.4	43.0	41.9	59.9	50.8	42.2	35.4	65.9	50.5	115
Bartlett	200.0	--	--	--	--	--	--	--	1.8	182.6	95.4	51
Carl Pleasant	173.0	26.6	0.6	55.2	12.8	102.7	25.9	8.6	5.3	184.5	49.3	107
San Carlos	1200.0	293.0	62.0	176.9	169.4	261.1	68.5	21.0	34.0	691.6	257.0	308

Some averages for shorter periods.

